

09/675,928

00AB074/ALBRP196US

REMARKS

Claims 1-28 are currently pending in the subject application and are presently under consideration. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments herein.

**1. Rejection of Claims 1-6, 8, 11-21, and 26-28 Under 35 U.S.C. §102(b)**

Claims 1-6, 8, 11-21 and 26-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by DiCarlo (US 5,519,726). Withdrawal of this rejection is requested for at least the following reasons. DiCarlo does not teach or suggest each and every limitation set forth in the subject claims.

A single prior art reference anticipates a patent claim only if it *expressly or inherently describes each and every limitation set forth in the patent claim*. *Trintec Industries, Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 63 USPQ2d 1597 (Fed. Cir. 2002); *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The *identical invention must be shown in as complete detail as is contained in the ... claim*. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

The subject invention relates to a system and method for synchronizing the sampling times of a plurality of modules in a controller. A coordinated system time (CST) is a time stamp provided by a master module to provide a common time base for use by all modules in the controller. (See pg. 7, ll. 1-0035). A memory component is located within each module, and stores a real time sampling RTS value, (see Fig. 2), which indicates a sampling time interval of the module. (See pg. 7, ll. 19-26). The CST signal is broadcast to each module relatively infrequently, several times per second for example, to conserve the bandwidth of the backplane. (See pg. 8, ll. 30-31). Alternatively, the RTS value is broadcast more frequently. (See pg. 8-9, ll. 29-4). The subject invention accomplishes module sampling synchronization by delaying a sampling action in a module until the CST reaches an integer multiple of the RTS value. (See pg. 9, ll. 22-25).

09/675,928

00AB074/ALBRP196US

A synchronization example can be found at page 11 of the instant specification. By way of example, if the RTS time interval is 100 milliseconds and the current CST value is 108,699 milliseconds, the module delays sampling until a CST value of 200,000 microseconds (which is two times the RTS time value). Advantageously, if a subsequent module is connected to the same backplane and configured to employ the same RTS time (100 milliseconds), the subsequent module, in accordance with the subject invention, will automatically synchronize to a substantially similar sampling rate by employing the same procedure (e.g., delay sampling until  $X * 100,000$  microseconds, where  $X$  is an integer).

To the above ends, independent claim 1 (and independent claims 13, 18, and 19 which recite similar limitations) recites a module operatively connected to the communications link, *the module having an activation interval for controlling periodic activation* relative to at least one of an input and an output thereof, wherein *the module is programmed to synchronize the activation interval* thereof relative to the coordinated system time base value. DiCarlo does not teach or suggest each and every aspect of the invention as claimed.

DiCarlo relates to the synchronization of modules based in part upon a coordinated system time. DiCarlo, however, achieves module synchronization in a manner that is much different to that of the invention as claimed. Specifically, DiCarlo is silent with regard to a *module having an activation interval*. In the Office Action dated September 7, 2004, the Examiner incorrectly asserts that such claim aspects are disclosed at Fig. 3, element 14, and col. 3, ll. 57-60, citing that modules within a rack that may include, for example, a power supply module, a processor module, two communication modules, two I/O modules, and a power supply module. It seems that by the disclosure of different types of *modules*, the Examiner asserts that DiCarlo discloses a *module having an activation interval*. However, such an assertion clearly lacks the element of an *activation interval*, an element to which DiCarlo is silent. Thus, the Examiner is failing to afford the claim element *module having an activation interval* patentable weight.

Furthermore, DiCarlo does not anticipate a module having an activation interval *for controlling periodic activation*. DiCarlo teaches a method of synchronization controlled in part by time quality messages broadcast system-wide. As disparate modules

09/675,928

00AB074/ALBRP196US

have disparate internal clocks, the clock having the highest quality value determines the time value of the controller, and other modules update their clocks in accordance with the highest quality clock. (See col. 2, ll. 33-53). Module scan synchronization is then accomplished through a command sent to the module. The command received by the module is made up of a command element that indicates an operation to be performed, and a time-based element that indicates some future CST value that the command element is to occur. (See cols. 5-6, ll. 65-25). Thus, it is clear that DiCarlo discloses the activation and synchronization of a module *via* a command *external* to the module.

Since DiCarlo discloses activation of a module exclusively by outside means, DiCarlo is clearly precluded from disclosing activation of a module by means *internal* to the module as set forth in the subject claims. Alternatively stated, DiCarlo is silent with regard to a *module* having an activation interval *for controlling periodic activation*. Thus, DiCarlo does not teach or suggest each and every element of the invention as recited in the subject claims.

DiCarlo is further silent with regard to a *module programmed to synchronize* the activation interval thereof to the coordinated system time base value as recited in the subject claims. More particularly, as discussed *supra*, the modules of the invention as claimed have an RTS value stored in the module memory. (See pg. 7, ll. 19-26). The RTS value is the value of the sampling interval (see pg. 7, ll. 19-26) and is a *programmable* value. (See pg. 5, ll. 22-25). Such programmability is apparent in the example offered above, namely if a subsequent module is connected to the same backplane and *configured to employ the same RTS time* (e.g. 100 milliseconds), the subsequent module, in accordance with the subject invention, *will automatically synchronize*. DiCarlo nowhere teaches a *module programmed to synchronize* the activation interval thereof to the coordinated system time base value.

More particularly, it has been made readily apparent from the above discussion that DiCarlo accomplishes module synchronization by a command *external* to the module, and that DiCarlo is silent with regard to a *module having an internal activation interval*. As such, the modules in DiCarlo are *controlled* in a manner that synchronizes module sampling; however, they are not *programmed* to synchronize module sampling. For example, it is not accurate to assert that a processor issuing a command to a module

09/675,928

00AB074/ALBRP196US

*programs* the module since the processor is *controlling*, rather than *programming*, the module. In the alternative, a user configuring a module to sample at a certain interval *programs* the module for that certain rate. Because DiCarlo *controls* rather than *programs* a module, it is readily apparent that DiCarlo fails to teach or suggest a *module programmed to synchronize* the activation interval thereof to the coordinated system time base value. Thus, DiCarlo does not disclose the invention as claimed.

In view of at least the foregoing, it is readily apparent that DiCarlo fails to teach or suggest each and every element of the subject invention. Thus, it is respectfully submitted that the rejection to independent claims 1, 13, 18, and 19 (and claims 2-6, 8, 11-12, 14-17, 20-21, and 26-28 which respectively depend there from) should be withdrawn.

## II. Rejection of Claims 1-6, 8, 11-21, and 26-28 Under 35 U.S.C. §102(b)

Claims 1-6, 8, 11-21 and 26-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by Husted *et al.* (US 5,887, 029). Withdrawal of this rejection is requested for at least the following reasons. Husted *et al.* does not teach or suggest each and every element of the invention as claimed.

Husted *et al.*, like DiCarlo, teaches module sampling synchronization in a controller. Husted *et al.* accomplishes such module synchronization in similarly to DiCarlo, and thus teaches a drastically different method than the one disclosed by the subject invention. In more detail, Husted *et al.* discloses that precisely coordinated actions may be obtained at separated components by the use of a *time conditional command*, the command instructing the component to execute the command only when a future execution time has been reached. (See Abstract). The cited reference fails to teach or suggest a module operatively connected to the communications link, *the module having an activation interval for controlling periodic activation* relative to at least one of an input and an output thereof, wherein *the module is programmed to synchronize the activation interval* thereof relative to the coordinated system time base value as recited in independent claim 1 (and similarly in independent claims 13, 18, and 19).

Husted *et al.* fails to teach or suggest each and every element of the invention as claimed due to deficiencies similar to those of DiCarlo. First, since Husted *et al.* relies

09/675,928

00AB074/ALBRP196US

upon sampling times explicitly based upon commands sent to a module, it is silent with regard to *the module having an activation interval*. Next, because the synchronization is accomplished via a command external to the module, Husted *et al.* fails to teach or suggest the module having an activation interval *for controlling periodic activation*. Finally, considering that Husted *et al.* teaches module synchronization through external control rather than internal programming, the reference is silent with regard that a *module is programmed to synchronize the activation interval*. Thus, Husted *et al.* fails to teach or suggest each and every element of the invention as claimed. Accordingly, it is respectfully requested that the rejection to independent claims 1, 13, 18, and 19 (and claims 2-6, 8, 11-12, 14-17, 20-21, and 26-28 which respectively depend there from) should be withdrawn.

### **III. Rejection of Claims 7 and 22 Under 35 U.S.C. §103(a)**

Claims 7 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DiCarlo in view of Benson *et al.* (U.S. 6,202,085). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Neither DiCarlo nor Benson *et al.* individually or in combination, teach or suggest all limitations recited in the subject claims.

Claims 7 and 22 depend from independent claims 1 and 19, respectively, and Benson does not make up for the aforementioned deficiencies of DiCarlo regarding these claims. Benson relates a system and method for incremental change synchronization among multiple copies of data, (*see* Abstract), and does not teach or suggest applicants' claimed invention. Accordingly, withdrawal of this rejection is respectfully requested.

### **IV. Rejection of Claims 7 and 22 Under 35 U.S.C. §103(a)**

Claims 7 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Husted *et al.* in view of Benson *et al.* It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Benson *et al.* does not make up for the aforementioned deficiencies of Husted *et al.* regarding claims 1 and 19, from which claims 7 and 22 respectively depend. Thus, the cited art, either individually or in

09/675,928

00AB074/ALBRP196US

combination, fails to teach or suggest all the limitations recited in the subject claims. Accordingly, applicants' representative respectfully requests withdrawal of this rejection.

**V. Rejection of Claims 9, 10, 24 and 25 Under 35 U.S.C. §103(a)**

Claims 9, 10, 24 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DiCarlo in view of Ernst (EP 0385134). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Ernst fails to make up for the aforementioned deficiencies of DiCarlo with respect to independent claims 1 and 19, from which claims 9, 10, 24, and 25 respectfully depend. Specifically, Ernst teaches a resynchronization method that tests whether the difference between the clock signal and a reference clock signal exceeds a specified threshold without even considering the system and method of control module synchronization disclosed in the subject claims. Hence, neither DiCarlo nor Ernst, either individually or in combination, teach or suggest all the limitations as recited in the subject claims. Withdrawal of this rejection is respectfully requested

**VI. Rejection of Claims 9, 10, 24 and 25 Under 35 U.S.C. §103(a)**

Claims 9, 10, 24 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Husted *et al.* in view of Ernst. Applicants' representative respectfully submits that Ernst fails to make up for the aforementioned deficiencies of Husted *et al.* regarding independent claims 1 and 19 (of which the subject claims respectively depend there from). Accordingly, withdrawal of this rejection is respectfully requested.

09/675,928

00AB074/ALBRP196US

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063[ALBRP196US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

AMIN & TUROCY, LLP



Himanshu S. Amin

Reg. No. 40,894

AMIN & TUROCY, LLP  
24<sup>TH</sup> Floor, National City Center  
1900 E. 9<sup>TH</sup> Street  
Cleveland, Ohio 44114  
Telephone (216) 696-8730  
Facsimile (216) 696-8731